



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------------|------------------------|
| 10/790,712 | 03/03/2004 | Mignard Francois | 21029-00272-US | 4299 |
| 30678 7590 09/06/2007 CONNOLLY BOVE LODGE & HUTZ LLP 1875 EYE STREET, N.W. SUITE 1100 WASHINGTON, DC 20036 | | | EXAMINER ZHENG, LOIS L | |
| | | | ART UNIT 1742 | PAPER NUMBER |
| | | | MAIL DATE 09/06/2007 | DELIVERY MODE PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|-------------------------------|-----------------------------------|--|
| Office Action Summary | Application No. 10/790,712 | Applicant(s) FRANCOIS, MIGNARD | |
| | Examiner Lois Zheng | Art Unit 1742 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

1. Claims 4-6 are amended in view of applicant's amendment filed 22 June 2007. Claims 1-3 and 7-12 are canceled in view of applicant's amendment. Therefore, claims 4-6 are currently under examination.

Specification

2. The amendment to the specification filed 22 June 2007 is entered.

Abstract

3. The substitute abstract filed 22 June 2007 is entered.

Status of Previous Rejections

4. The rejection of claims 1-3 under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al. JP 2001-059133(Shimizu) is withdrawn in view of applicant's claim amendments filed 22 June 2007.
5. Applicant's arguments, see page 11, filed 22 June 2007, with respect to Halley US 3,518,109 have been fully considered and are persuasive. The rejection of claims 4 and 6 under 35 U.S.C. 103(a) as being unpatentable over Shimizu, and further in view of Halley US 3,518,109(Halley) has been withdrawn.

Status of Previously Indicated Allowable Subject Matter

6. The indicated allowability of claim 5 if rewritten in independent form is withdrawn in view of the newly discovered reference(s) to Delaunay et al. US 6,761,779 B2 (Delaunay). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al. JP 2001-059133(Shimizu), and further in view of Delaunay et al. US 6,761,779 B2 (Delaunay).

Shimizu teaches an continuous hot-dip galvanizing process comprising passing the steel sheet containing oxidizable elements such as Zi, Mn and Cr to oxidation treatment in air to form an oxide film before entering a reduction annealing furnace prior to hot dip galvanization(abstract, paragraphs[0010-0012]). Shimizu further teaches that the oxidation temperature should be maintained at 200-650°C and the treatment time should be maintained at 5-100seconds(paragraph 0011-0012].

However, Shimizu does not explicitly teach the claimed control if oxidation treatment time by modifying the length of strip between the outlet of the heating zone upstream of the furnace and the inlet of the galvanizing furnace.

Delaunay teaches that a metal strip is preheated in a preheating zone before being sent a galvanizing furnace(abstract). Delaunay also teaches that oxidation takes place in the preheating zone to form an oxide layer on the metal strip which is subsequently removed by reduction in the galvanizing furnace by heating in hydrogen (col. 1 lines 7-10, col. 2 lines 14-23). Delaunay further teaches that the length of the

Art Unit: 1742

preheating zone can be varied to control the oxidation of the metal strip(col. 3 lines 3-24, col. 4 lines 48-51) and to affect the residence time in the downstream reducing furnace(i.e. galvanizing furnace)(col. 5 lines 13-19).

Regarding claims 4-6, since Delaunay teaches that the length of the oxidizing preheating zone is a result effective variable, one of ordinary skill in the art would have found it obvious to have varied length of strip between the outlet of the heating zone upstream of the furnace and the inlet of the galvanizing furnace in the process of Shimizu in order to achieve the designed level of oxidation on the metal strip. The claimed heating zone upstream of the furnace and the inlet of the galvanizing furnace defines a zone during which oxidation of the metal strip occurs.

Regarding claims 4-6, the oxidation temperature of 200-650°C as taught by Shimizu overlaps the claimed oxidation temperatures of 150-400°C. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed oxidation temperature range from the disclosed range of Shimizu would have been obvious to one skilled in the art since Shimizu teaches the same utilities in its' disclosed oxidation temperature range.

Regarding the claimed controlling of temperature/time pair, Shimizu teaches maintaining the oxidation temperature and time in a preferred range. In addition, the oxidation temperature and treatment time has an inverse relationship, that is, higher oxidation temperature leads to lower treatment time to produce the same oxide film thickness, and vice versa. Therefore, one of ordinary skill in the art would have found it

obvious to have controlled the temperature/time pair in the process of Shimizu in order to control the thickness of the oxide film.

Regarding claim 5, one of ordinary skill in the art would have found it obvious to have modified the length of the strip undergoing oxidation by moving of the upstream oxidation treatment zone along the direction of the strip as claimed since it is the simplest way to adjust the length of strip undergoing oxidation without incur extra cost.

Response to Arguments

9. Applicant's arguments filed 22 June 2007 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1742

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LLZ

ROY KING
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700